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## ECOLOGICAL CIVILIZATION EDUCATION: AN INDISPENSABLE PART OF CHINA'S ECOLOGICAL CIVILIZATION CONSTRUCTION ROAD

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#### Abstract:

In the context of global sustainable development (SD) and China's ecological civilization construction (ECC), China has entered a new era of change, and its social, economic and environmental development is moving toward SD. However, due to an inadequate understanding of the root causes of environmental problems in promoting the ECC, the critical role of education in this process needs to be addressed. At the same time, the United Nations (UN) pointed out that education is critical in promoting SD and increasing the capacity of people to solve the environmental and development issues in the agenda in the 21st century. Integrating the concept of ecological civilization into education plays a crucial role in solving environmental problems. However, with the popularization of ecological civilization education (ECE) and the deepening of research, its existing problems are becoming increasingly apparent, so it is necessary to make a systematic plan for developing ECE. By reviewing the historical process of ECE development, this paper aims to discover the vital role of ECE in China's ECC process and the realization of SD discusses the relevant prospects and challenges of ECE and summarizes and puts forward the policy and enlightenment for the future development of ECE in China. This paper contributes to the ongoing discussion on education to address environmental or development issues, enabling relevant policymakers and stakeholders to see the present or future opportunities and complexities of ECE and make the right choices.

**Keywords:** Ecological Civilization Education, Ecological Civilization Construction, Sustainable Development, China

## INTRODUCTION

Since the emergence of industrial society, accompanied by continuous scientific and technological advancements and rapid global economic development, human beings have experienced an improved quality of life. However, this progress has come at the cost of significant depletion of natural resources and many environmental crises, such as ozone layer depletion, climate change, acid rain proliferation, biodiversity loss, and land degradation. These crises not only compromise human well-being but also pose threats to our safety. Therefore, we must reassess the intricate relationship between humanity and nature while seeking comprehensive solutions to these challenges. However, humanity has made remarkable efforts to reduce environmental pollution and improve human habitat quality through worldwide joint efforts (Chai et al., 2024). These policies and approaches must be revised due to escalating population growth rates, pervasive hedonistic tendencies, and dissemination of anti-environmental ideologies; ecological problems are still emerging. Ecological problems have become critical human survival and development issues in the 21st century (Zhao, 2013).

After 1949, China successfully achieved rapid industrialization and modernization within a few decades, resulting in significant environmental degradation and pollution, and its



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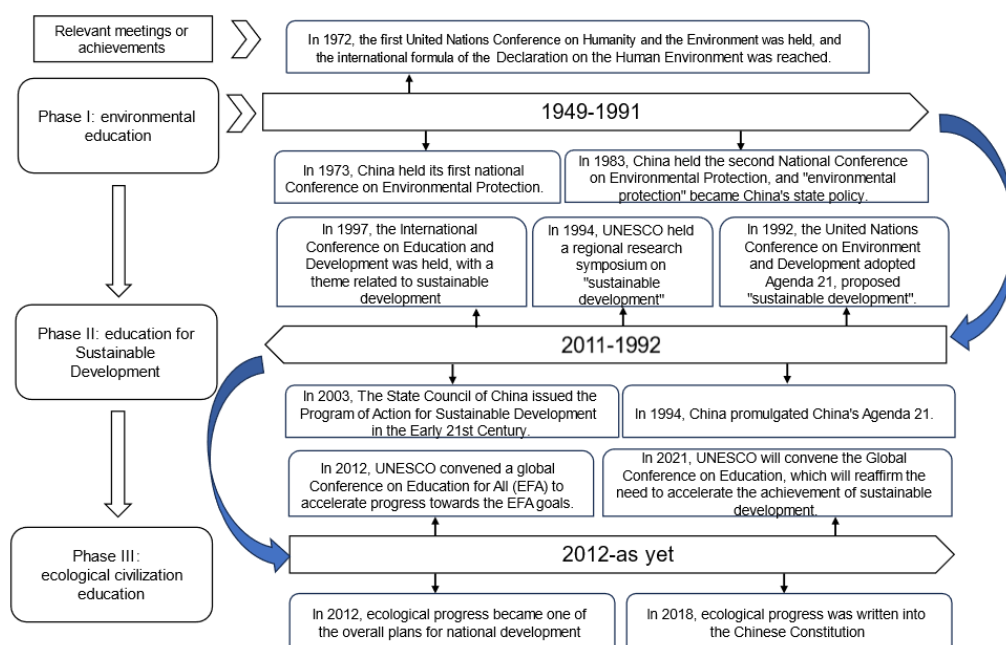
environmental challenges are far more severe in terms of volume, severity, and scope than what industrialized countries have faced in the past (Chen & Zhao, 2022). In response to this pressing issue, China has implemented measures to balance economic development and environmental protection, achieving sustainable development. These initiatives have resonated with its citizens and garnered international attention under the "ecological civilization." The Inclusion of ECC in the National Development Plan 2012 signified its strategic importance for China's environmental governance. Furthermore, its incorporation into the Chinese Constitution in 2018 highlights that "ecological civilization" will serve as a guiding principle for future policies, legislation, and educational endeavors related to environmental protection. ECC has become essential for achieving SD and resolving China's severe resource and environmental issues (Zuo et al., 2021). However, ecological civilization's conceptual framework and practical implementation heavily rely on education. Thus, education is an indispensable factor in shaping the direction and quality of China's ECC process. Now, we briefly review the development of ecological civilization education in China.

**The Development of ECE in China.** China's ECE was produced by changing the concept of environmental protection and focusing on education. Before 1992, China was early aware of environmental protection and is still strengthening environmental protection publicity, as shown in Figure 1. In 1972, with the convening of the first United Nations Conference on the Human Environment and the international consensus of the Declaration on the Human Environment, environmental protection awareness in China was greatly influenced. Therefore, China held the first National Environmental Protection Conference in August 1973, which pointed out the direction and opened up the road for China's environmental protection and EE in the future, making the people realize the harm of environmental damage and the importance of environmental protection. In 1983, China convened the second National Environmental Protection Council, which made "environmental protection" a basic state policy of China. During this period, environmental protection was promoted in newspapers, magazines, radio, lectures, reports and other forms, and EE was widely conducted in primary and secondary schools through informal forms. It improves the public's awareness of environmental protection, improves the public's awareness of environmental protection, and promotes the public's participation in environmental governance (Niu et al., 2022). Therefore, this period is called "EE."

In 1992, with the successful holding of the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, the concept of "sustainable development" in the vital document "Agenda 21" was widely accepted by all countries worldwide. The concept of sustainable development has become the first choice or essential guiding principle for countries to deal with population, resources and environment. 1994 The United Nations Educational, Scientific and Cultural Organization (UNESCO) launched the "Education for a Sustainable Future" project. In 1995, UNESCO convened a regional "Reorienting EE for Sustainable Development" seminar in Athens, Greece. In 1997, the International Conference on Education and Development was successfully held in Greece under "National Environment and Society: Education and Public Awareness for Sustainable Development". The holding of these conferences and the launching of projects have transformed international EE into ESD under the guidance of sustainable development concepts. Driven and inspired by the "concept of sustainable development" proposed by the United Nations Conference on Environment and Development, China's concept of environmental protection has also been transformed into "sustainable development," and "EE" has also been transformed into "education for sustainable development (ESD)," which is in line with international standards. With an in-depth understanding and practice of SD, China promulgated "China's Agenda 21" in 1994, which laid a solid foundation for SD in China and became the general program of sustainable social

development. The concept of sustainable development has been turned from scientific consensus into an essential part of government work and concrete action (Wang et al., 2012). Since then, ESD has been widely carried out in China.

With the victory of the third Plenary session of the 16th Central Committee of the Communist Party of China (CPC), the scientific concept of development, ecological protection and construction are also carried out, advocating ecological civilization, ecological protection planning, the establishment of ECE base, for China's "ESD" into "ECE" laid the foundation. In 2012, ECC became one of the overall layouts of national development; in 2018, ECC was written into the Constitution. ECE has spread among society, governments at all levels, and the people, becoming an indispensable part of China's SD.



**Figure 1.** Map of the Development of ECE in China

**Present Situation of ECE in China.** Education is crucial for distributing and promoting SD globally (Zhou & Lee, 2022). The proposal of ECE is the inevitable result of the continuous understanding of ECC and SD. Facts have also proved that ECE can enhance public awareness of environmental protection, elevate individuals' ecological literacy, and establish a platform for addressing diverse ecological and environmental challenges, thereby facilitating ECC's advancement and achieving SD.

For example, in 2022, 85.5% of the days in cities at the prefecture level or above will have good air quality, better than the annual target of 0.9%. PM2.5 concentration was 29ug/m3, down 3.3% from 2021, achieving a continuous decline in the past 10 years. The proportion of surface water class I-III water quality sections was 87.9%, an increase of 3.0%. Soil and water loss in China continued to improve, with the area of soil loss falling to 265.34km/m2, 20,800 m2 less than that in 2021, and the soil and water conservation rate rising from 68.88% in 2011 to 72.26%. The national forest coverage rate reached 24.02%, and the comprehensive vegetation coverage of grasslands reached 50.32%. On the one hand, this series of sustainable ecological improvements is inseparable from the various



technical means and top-down decision-making people adopt for environmental protection. On the other hand, it is inseparable from the ECC, the concept of sustainable development and the principle of harmonious coexistence between man and nature promoted by ECE.

Through ECE, individuals can develop values, thought processes, and lifestyles that align with the principles of sustainable development and ecological civilization. It will enable the general public to gain a profound and accurate understanding of the pivotal role of the environment in human and social progress. We can only foster a harmonious relationship between humans and nature, achieve SD, and construct an ecological civilization when society treats the environment with clarity and rationality. All kinds of schools across China constantly promote ECE to different degrees, and significant progress has been made in basic research, evaluation and assessment, planning and project implementation. Especially in the ECE research topics it is focused on strengthening ECE on school campuses and promoting education in the practice of eco-civilization (Wang et al., 2022).

In China, education has been widely acknowledged by individuals in political, environmental protection, and educational spheres for its crucial role in the ECC and environmental preservation. This recognition is further reinforced by the growing awareness of China's shift towards "ecological civilization" as a transformative approach to environmental protection. Consequently, there have been proposals from scholars advocating for the transformation of "environmental education (EE)" into "ECE," leading to the emergence of China's ECE. Promoting ECE in China is considered an inevitable requirement, a crucial guarantee, and the essence of thoroughly implementing the scientific concept of development, executing the ECC, achieving SD, and building a beautiful China. It is also considered an essential way to promote SD and environmental protection (Zhou et al., 2023). From this perspective, it is evident that ECE plays a vital role in China's efforts to construct an ecological civilization and is an indispensable component on its path toward such construction.

In the following chapters, We started with a simple visual analysis of the collected literature. At the same time, the concepts of sustainable development and ecological civilization in education are discussed, and their prospects and challenges are analyzed. Summarize and refine relevant ECE's current and future development deficiencies and get relevant policy and management enlightenment. The last section summarizes the findings of this study. It calls for future research on the development of ECE, emphasizing that ECE needs to be further strengthened in the context of the world's SD trend and China's ECC to realize the promotion of China's SD and ECC.

## METHODS

We searched the Web of Science regarding China's ECE, sustainability, and sustainable research. We found 1640 studies (including 28 studies on China's ECE and 1621 studies on China's sustainability or sustainable development) covering the period from 1995 to 2024. It is a great pity. Although we get such a large number of studies, through our initial reading of the titles, abstracts and keywords of relevant articles, we find that most of these articles are focused on: China's urban development (Wang et al., 2019; Yue, 2022; Zhang, 2022), natural resource (Xue, 2017; Li et al., 2017; Li et al., 2020; Lei, 2020), tourism (Dong et al., 2021; Tang et al., 2022; Zhao et al., 2023), agriculture (Lu et al., 2018; Jin et al., 2024), and ecological compensation (Hu et al., 2011; Weins, 2019) or ecological restoration (Xiao et al., 2011; Xu, et al., 2022). In the research of ECE in China, we find that these studies mainly focus on educational psychology (Tao et al., 2022; Wei, 2022) students (Wang et al., 2020; Chang, 2022; Liu & Luo, 2023), the Internet (Pei, 2022), the construction of evaluation index system (Ren et al., 2018; Chang, 2022) and method study (Lu, 2021), which are not in line with the research of this paper, so it is difficult to complete the main content of this paper. However, these



articles are helpful for this research. On the contrary! We can draw unexpected inspiration and enlightenment from these articles. It will be reflected in the following content.

We can shift the source of literature data. Because ECE was born and grew up in China, and there is no such concept in other countries and regions outside China. Therefore, our literature search engine can be transformed from Web of Science into China's largest, most authoritative and most professional literature search engine - China National Knowledge Network(CNKI). We conducted a search on CNKI with ECE as the main topic and obtained a total of 3146 articles from 1998 to February 29, 2019. By reading titles and abstracts, we removed irrelevant to ECE, duplication, newspapers, reviews, book reviews, documentaries, and conference papers and screened 663 relevant literature through full-text reading. All the 663 pieces of literature mentioned concepts related to ECC or sustainable development, indicating whether these articles align with this paper's reference requirements. Therefore, we carry on to the following analysis.

A quantitative bibliometric analysis accompanies the literature review, aiming to highlight the salience of key terms in the literature for researchers (Halmaghi et al., 2023). In China and even the world, ECE, as a new educational concept, has enriched the concept, content and methods of education and contributed new strength to the world's implementation of the SD goals. To highlight the interaction of keywords in the 663 articles we retrieved, we used VOSviewer to incorporate keywords repeated at least 5 times into our analysis, resulting in a cluster highlighting 47 items. That is 47 high-frequency keywords with frequencies from 5 to 603. As shown in Figure 2, we can observe the analysis of ECE based on keywords, illustrating the current trend of ECE in China and the notable research in ecological civilization and ECC. It shows the main research directions and fields of ECE in China.

The 663 pieces of literature mentioned above contain 739 keywords, which form interconnected clusters in the network, as shown in Figure 2, illustrating the scientific fields studied by ECE in China. Through detailed analysis, we can highlight the analysis types related to ECE: through ECE, or set up ECE courses in universities so that college students can understand nature and the environment, to build reserve forces for realizing SD; Provide strength for promoting ECC; take it as a new means of ideological political education to enter a new era, and it becomes a way to perfect students' personality. Of course, these are just some topics of interest for academics or researchers.

The same elements of these articles are the analysis of ECE as the core of China's ECC, the analysis of the impact factors of ECE on China's SD, and the possibility of improving the ecological literacy and environmental awareness of the educated through ECE. Table 1. highlights the top ten keywords with the most frequent occurrence. From this sequence and the relationship established in the network diagram, the relevant research of China's ECE mainly focuses on a large module of students. It focuses on the ideological education of students. After all, students are an essential determinant of the development and direction of the country in the future, and the ideology determines whether the country can achieve SD in the future.

**Table 1.** The Number of Occurrences and Total Link Strength of the Top Ten Keywords

Keyword	Occurrences	Total Link Strength
ECE	546	603
College students	112	222
Ecological civilization	131	170
Colleges and universities	76	140
Pathway	46	93
Ideological political education	36	75
New Era	30	65
Ideological political course	28	49
Education	25	41
ECC	23	39

From the above analysis and the literature collected from Web of Science and CNKI analysis, it becomes evident that a close correlation exists between ECE and ECC in China. Using summarization and organization, we can deduce that ECE assumes three pivotal roles in China's ECC: (1) ECE is an essential guarantee for the implementation of ECC; (2) ECE is an important source of strength for promoting ECC; and (3) ECE is a solid foundation for the realization of ECC. These significant roles hold profound implications for exploring the relationship between ECE and ECC, enabling us to understand their interconnectedness better. The subsequent sections elaborate on these three critical roles.



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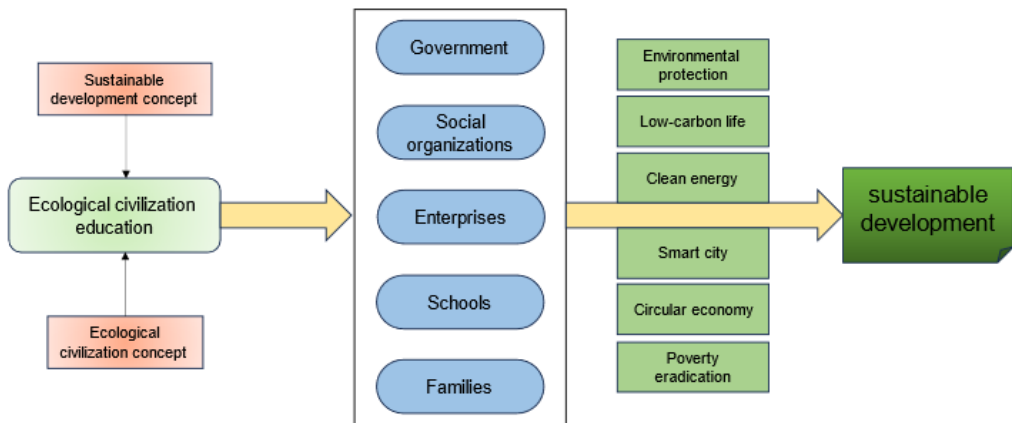


development and the goal of harmonious coexistence between man and nature into the whole process of education so that young students firmly establish the concept of sustainable development and firmly become practitioners and disseminators of ECC. In turn, it will influence and drive the ECC in society.

ECE is increasingly important in China's ECC and SD process (see Figure 3). Because it plays a crucial role in helping the educated, understand the world and practice the many aspects of SD. It involves creating a practical and implementable ECE system so that the ECE content or academic curriculum can be consistent with the needs of SD of society, the teaching goals expected by schools and families, and the ideal state of ecological literacy improvement and SD practice for teachers and individuals educated. Of course, this also requires developing sustainable thinking skills in teachers and education, empowering them to champion sustainable transformation (Abulibdeh et al., 2024).

Innovation and development are essential in global SD and China's ECC. ECE promotes critical thinking, the ability to solve relevant problems, and a holistic understanding of the global environment. By integrating the concept of ecological civilization into education, the educatees are encouraged to practice the two concepts actively, achieve the goal of green and low carbon, and develop relevant programs that meet the development and needs of ECE to promote its continuous improvement.

In addition, SD and ECC emphasize science and technology in protecting the environment. ECE is responsible for emphasizing the use of resources and related ethical issues, which are essential for achieving SD and building an ecological civilization. Integrating the concept of ecological civilization into education focuses on developing sustainable thinking, promoting a green and low-carbon approach, and emphasizing long-term environmental and social impacts. Of course, ECE also emphasizes interdisciplinary cooperation and engagement with different stakeholders. Governments, societies and schools should prepare to learn ECE effectively by promoting multi-party cooperation and systems thinking.



**Figure 3.** The Effect of ECE on Various Elements of Society

However, in the context of global SD and China's ECC, combining the concept of ecological civilization with education has both prospects and challenges. The concept of ecological civilization plays an essential role in promoting people's environmental protection, exploring technological renewal, and transforming economic structure (Dharma et al., 2023). However, it has some problems, such as solid policy slogans and weak execution. In order to increase GDP, many countries and regions still need to adopt sustainable production methods. Resistance to change. By



integrating the concept of ecological civilization with education, through the addition of relevant courses and training, and the interaction and integration between different disciplines, the educatees can more clearly realize that our environment needs to be protected, change their inherent "anthropocentric thinking," and then improve their ecological literacy and strengthen their ecological skills. Expand their lifelong learning opportunities to change ECE's future development pattern completely.

Moreover, challenges include that ECE can only partially change people's original way of thinking, the lack of policy support, inadequate professional training, and exam pressures, which continue at the institutional level (Zhou, 2024). Overcoming resistance or fear of change And a systematic approach that can maintain the development of ECE. The government and schools must deal with these challenges and effectively take advantage of the opportunities of global SD and the ECC in China. It plays a vital role in shaping the future development of ecological education through the use of relevant policies and legal guidelines while ensuring the responsible and ethical use of relevant ecological education tools.

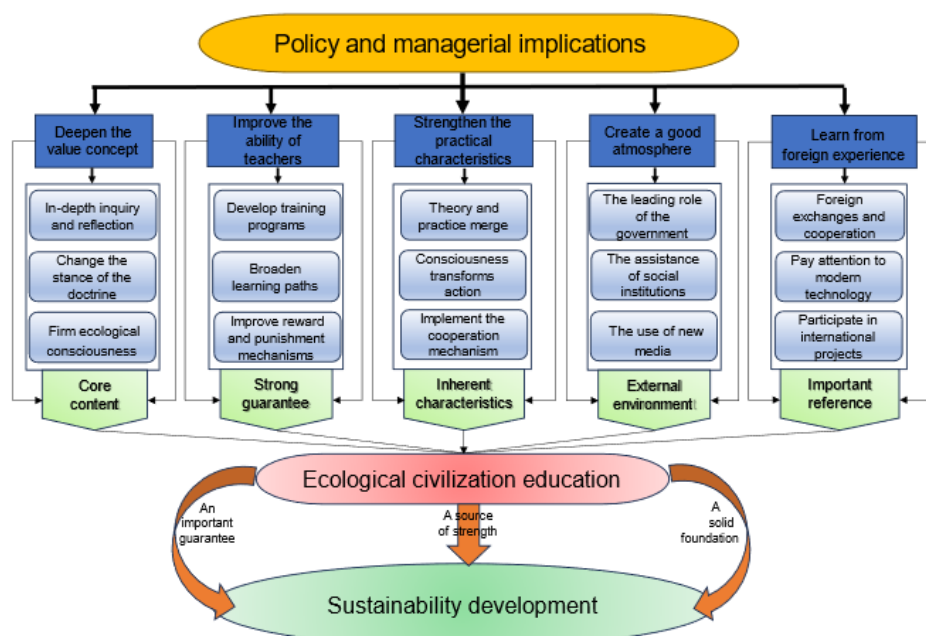
In this constantly developing and changing environment, the government and schools should adopt a holistic and systematic approach, including deepening the educational concept, improving teachers' ability, strengthening education's characteristics, creating a good atmosphere, and learning from relevant experience. By doing so, we can profoundly understand ECE, change the "anthropocentric stance," practice the concept of sustainable development and ecological civilization, and add impetus to realizing sustainable development goals. Governments and schools should also recognize their essential role in social transformation, ongoing EE and policies to raise awareness of critical ecological issues instead of simply imposing a policy of ecological civilization from the top down (Lu et al., 2023). While adopting a systematic approach to education, they strive to align their goals with SD and the ECC. It includes integrating sustainable development and ecological civilization into education and campus construction, promoting multi-stakeholder participation, and fostering sustainability awareness among leaders, teachers, and students.

**Policy and Managerial Implications.** The development of ECE is contingent upon the overall progress of China ECC and SD, as it undertakes the dual responsibilities of optimizing national quality education and promoting ECC. Its primary objective is to disseminate the concept of ecological civilization, foster environmentally conscious citizens in the new era, facilitate harmonious coexistence between humanity and nature, and ultimately achieve SD. However, with the continuous popularization of ECE, China's ECE also faces many obstacles, shortcomings, and congenital disabilities. Therefore, we propose the following relevant policies and management inspirations (see Figure 4) for the successful development of ECE in China in the future:

**Deepen the Value Concept of ECE.** As the core of ECE, the value concept can reflect the status of ECE, is a comprehensive reflection of the direction of ECE and content quality, and is related to the success or failure of ECE. Currently, China's ECE is a superficial education only for the interests and development of human beings rather than an education pointing to ecological civilization. The value concept still needs to eliminate the anthropocentrism standpoint, which makes the direction of ECE wrong, and the education effect could be better (Toha et al., 2023). Although the concept of ecological civilization is widespread, there is no "integration of knowledge and practice," and the progress of ecological literacy cultivation is slow. It is essential to deepen and reform the value concept of ECE. Therefore, the deepening and reform of the value concept of ECE should:

- 1) Guide learners to get rid of the mechanistic worldview, establish a new worldview, and make them continue to inquire and reflect on the causes of environmental problems deeply;

- 2) Deeply analyze the relationship between man and nature, change the anthropocentrism stance, introduce the ecological civilization value concept of harmonious coexistence between man and nature in multiple scales to change the value concept of ECE;
- 3) Continue to enhance the ecological consciousness of the educated firmly, make it genuinely understand the connotation of ecological civilization, master specific environmental protection knowledge, have a good awareness of ecological civilization, and establish the cultural values of ecological civilization (Wang, 2021);
- 4) Promote the high-quality development of ECE, break the problems of formalization, simplification, and surface of ECE, optimize the ECC system and mechanism, enhance the deep understanding of ECE, and help change the value concept of ECE.



**Figure 4.** ECE of Policy and Managerial Implications

**Enhance the Ability of ECE Teachers.** Because of the educational activities, teachers are the model of students and the source of students' values demonstration. Teachers' values directly and profoundly impact the establishment of students' values (Xu & Luo, 2022). In the face of the current development of ECE and the process of ECC, China's ECE teachers need to be more, and teachers' abilities should be fully improved. Therefore, it is necessary to:

- 1) The relevant departments should formulate a teacher training plan for ECE as soon as possible, establish an expert think tank or famous teacher group for ECE based on the development concept and goal of ECE, build a team of ECE teachers with level, ability and accomplishment, to promote the improvement of their teaching quality;
- 2) Establish learning platforms and training institutions for ECE teachers, broaden the learning paths for teachers, and provide channels for cultivating teachers' ecological civilization thinking and ideology;
- 3) Increase the reward input for ECE teachers, improve the reward mechanism, fully mobilize the enthusiasm and creativity of teachers, encourage teachers to conduct in-depth research on the development of ECE, pay attention to the transformation of teachers' ECE project results;

- 4) Strengthen the dynamic monitoring, assessment and evaluation of teachers' knowledge and ability of ecological civilization, enhance the importance of teachers' knowledge and ability of ecological civilization, and ensure that teachers' knowledge and ability of ecological civilization are not left behind.

**Strengthen the Characteristics of ECE Practice.** Practicality is the inherent characteristic of ECE. It is necessary to let most educatees form ecological consciousness and cultivate ecological literacy in the ECE practice. However, back at the ECE in China today, most of them still "talk about the blue sky and white clouds" in the classroom, "watch ants moving, dragonflies flying low, and listen to birds and insects singing" in the video player. This kind of ecological knowledge is taught in a closed space. Education in contact with nature has helped improve ecological awareness and the development of ECE to a large extent. In this regard, ECE should be carried out, and the practical characteristics of ECE should be strengthened:

- 1) Broaden the methods and fields of ECE practice, giving full play to the educational value of practice activities such as research travel, outdoor expansion, and labor education, enables students to reflect on their perception and act in their reflection (Wang, 2013), thereby influencing and leading more people to join in the action of environmental protection, promote the integration of ECE theory and practice;
- 2) Encourage green and low-carbon production and lifestyle; strengthen the education and guidance of sustainable ecological values so that students can understand the symbiotic relationship between humans and nature in low-carbon life, form an ecological awareness of ecological actions;
- 3) Establish a collaborative mechanism for multi-party practice, mobilize diverse resources, foster close cooperation, and integrate ECE into this process to inspire students to learn and act upon the concept of ecological civilization consciously.

**Create a Good Atmosphere for ECE.** An excellent social atmosphere is the necessary external environment for the development of ECE. By creating an excellent social atmosphere for ECE, people can understand the significance of ECE and its content, clarify its requirements, and form a consensus so that the broad masses can become active participants in an excellent social atmosphere. Therefore, it is suggested to:

- 1) Give full play to the leading role of the government in creating an excellent social atmosphere, scientifically coordinate various government units and departments, timely exchange and close cooperation, and thus create a good social atmosphere for the development of ECE;
- 2) The media, social organizations, enterprises, non-governmental organizations and the public should become subjects of ECE and undertake more tasks in this education (Zhang, 2012), promote them to get closer to the government, consistent with the government's propaganda goals, to better publicize ECE;
- 3) Make good use of Arbor Day, Earth Day, Labor Day, Environment Day, Ecological Day and other festivals to celebrate a good social atmosphere, actively spread the concept of ecological civilization, promote ECC and ECE, and promote the upward development of ECE;
- 4) Pay attention to the publicity power of new media, improve the intelligence of propaganda and education carriers, strengthen the publicity of ECC and ECE, promote environmental protection and ecological civilization publicity, create a good atmosphere simultaneously, do an excellent job of public opinion guidance, and firmly hold the initiative, dominance and discourse power.

**Learn from Foreign Experience in ECE.** Advanced foreign experience in promoting the development of ECE has a vital reference value. We should draw on foreign advanced experiences in EE, natural education and ESD, pay attention to implementing procedures and transforming





results to meet the needs of our economic and social development and the construction of ecological civilization, and then add power to the development of ECE in China. In this regard, it is necessary to:

- 1) Strengthen cooperation with relevant countries that have implemented EE developed well, such as Sweden, Norway, Finland, etc., promote university teachers and students, experts and scholars to visit and study abroad, learn their advanced practices related to EE, better serve the development of ECE and ECC in China;
- 2) Pay attention to modern information technology means, take the development of "digital +," "Internet +," "artificial intelligence +" and "5G+" as opportunities, promote the cooperation of global ecological civilization information education and the construction of international exchange platforms for ECE, promote the joint construction and sharing of global ECE resources;
- 3) Actively participate in international projects related to ECE, such as the International Ecological School project, children's environmental protection education plan, and ESD plan, through the application and implementation of projects, learn from international experience, build a broader platform for the development of ECE in China, for China's ECC and sustainable development should make contributions.

## CONCLUSION

In the context of global sustainable development and China's ECC, this study explores the ECE in China's ECC process. It lays a foundation for an in-depth exploration of the relationship and integration between China's ECC and ECE in this context. We have witnessed the history of the development of ECE in China, found a close relationship between ECE and China ECC, and concluded that their integration will bring many opportunities to the future of society. However, the opportunity to integrate the concept of ecological civilization into education depends on whether the government and schools can systematically plan education or build a guarantee mechanism for education. It is a challenge that must be solved in the development of ECE.

The necessity of global SD and the importance of China's ECC emphasize the urgency of ECE, closely related to the constantly developing and changing environmental pattern. Integrating the concept of ecological civilization into education is becoming a catalyst for social transformation, bringing both hope and complexity. With the continuous popularization of ECE, people's inherent awareness is undergoing a subtle change, and production technology is increasingly clustered around green and low-carbon development, constantly stimulating innovation. However, as ECE becomes more and more common, the consistency of policy, practical effects, future development direction and industry needs is becoming increasingly important.

This study emphasizes the importance of ECE for the ECC, the realization of SD in China, and its importance in training the public for the future of SD and ECC. This paper introduces the development course of ECE in China, which significantly connects with the development of mainstream consciousness worldwide. It is found that ECE plays three critical roles in China's ECC and SD (Oktaviari et al., 2023). First, it is an important guarantee. Second, it is an essential source of strength. Third, it has a solid foundation. The prospects and challenges of integrating the concept of ecological civilization into education were discussed. China's ECE provides the educatees with the ability to understand the world, improve their ecological literacy, and practice the concept of sustainable development, which fully meets the relevant requirements of China's ECC and SD.

On the other hand, the development of ECE in China also needs help with strong slogans, poor execution, and lack of systematic methods or essential guarantees to promote the development of ECE. In order to effectively promote the development of ECE in China, the government and schools



should adopt a holistic and systematic approach, including deepening the educational concept, improving teachers' ability, strengthening education's characteristics, creating a good atmosphere, and learning from relevant achievements and experiences. Finally, through relevant policy suggestions and inspirations, we hope that relevant governments, schools or leaders can pay attention to the importance of ECE, improve the shortcomings of ECE itself, and promote the development of ECE to realize this vision and pave the future road for SD and ECC in China.

## REFERENCES

- Abulibdeh, A., Zaidan, E., & Abulibdeh, R. (2024). Navigating the Confluence of Artificial Intelligence and Education for Sustainable Development in the Era of Industry 4.0: Challenges, Opportunities, And Ethical Dimensions. *Journal of Cleaner Production*, 140527. <https://doi.org/10.1016/j.jclepro.2023.140527>
- Chai, Z., Guo, F., Cao, J., & Yang, X. (2024). The Road to Eco-Efficiency: Can Ecological Civilization Pilot Zone be Useful? New Evidence from China. *Journal of Environmental Planning and Management*, 67(3), 477-503. <https://doi.org/10.1080/09640568.2022.2118571>
- Chang, Y. (2022). Research on Innovation Evaluation of Ecological Civilization Education of College Students: Based on KAP Model. *Journal of Environmental Protection and Ecology*, 23(2), 768-774.
- Chen, S., & Zhao, Y. (2022). Ecological Civilization: A Blindspot in Global Media Coverage of China's Environmental Governance. *Environmental Communication*, 16(2), 195-208. <https://doi.org/10.1080/17524032.2021.1981419>
- Dharma, R., Hady, H., Lusiana, L., Ridwan, M., & Mulyani, S. R. (2023). Analysis of The Influence of Work Stress on Employee Performance With Job Satisfaction as an Intervening Variable. *International Journal of Social Science and Business*, 7(3), 748-757. <https://doi.org/10.59141/jrssem.v3i02.550>
- Dong, J., Xing, Z. C., Song, Z. Y., & Bao, T. N. Research on the Role of Ecotourism from the Perspective of Ecological Civilization. *Fresenius Environmental Bulletin*. 2021,3291-3297.
- Halmaghi, E. E., Ranf, D. E., & Badea, D. (2023). Interdisciplinary Exploration Between Organizational Culture and Sustainable Development Management Applied to the Romanian Higher Education Environment. *Sustainability*, 15(13), 10688. <https://doi.org/10.3390/su151310688>
- Hu, J., Hu, M., & Zhang, H. (2023). Has the Construction of Ecological Civilization Promoted Green Technology Innovation? *Environmental Technology & Innovation*, p. 29, 102960. <https://doi.org/10.1016/j.eti.2022.102960>
- Jin, G., Yu, H., He, D., & Guo, B. (2024). Agricultural Production Efficiency and Ecological Transformation Efficiency in the Yangtze River Economic Belt. *Land*, 13(1), 103. <https://doi.org/10.3390/land13010103>
- Lei, J. (2020). Reforming the Natural Resource Auditing System from the Ecological Civilization Perspective. *Chinese Journal of Population, Resources and Environment*, 18(2), 87-96. <https://doi.org/10.1016/j.cjpre.2019.01.001>
- Liu, C., Kong, H., & Cao, H. (2017). Ecological Compensation System and Manage Countermeasures for Coal-Fired Power Plants in China. *International Journal of Sustainable Development & World Ecology*, 24(5), 415-419. <https://doi.org/10.1080/13504509.2016.1273270>
- Liu, S., & Luo, L. (2023). A Study on the Impact of Ideological and Political Education of Ecological Civilization on College Students' Willingness to Act Pro-Environment: Evidence from China.







- Toha, M., Ronda, M., & Widowati, D. (2023). Crisis Communication Management In Restructuring Programs. *International Journal of Environmental, Sustainability, and Social Science*, 4(6), 1927-1939.
- Wang, G. (2013). Efficient Education Scheme of Ecological Civilization. In *Informatics and Management Science II* (pp. 769-775). Springer London. [https://doi.org/10.1007/978-1-4471-4811-1\\_98](https://doi.org/10.1007/978-1-4471-4811-1_98)
- Wang, N., Guo, J., Zhang, J., & Fan, Y. (2022). Comparing Eco-Civilization Theory and Practice: Big-Data Evidence from China. *Journal of Cleaner Production*, p. 380, 134754. <https://doi.org/10.1016/j.jclepro.2022.134754>
- Wang, R., Sun, S.X., Cheng, J.H., Qi, R. (2020). Impact of Ecological Civilization Education on College Students' Garbage Classification Behavior – An Empirical Study Based on 152 Colleges and Universities Across China. *Arid. Zone Resour. Environ*, 34, 21-27.
- Wang, T. (2021). Investigation and Analysis of the Status Quo of Ecological Civilization Education for College Students. In *IOP Conference Series: Earth and Environmental Science* (Vol. 693, No. 1, p. 012080). IOP Publishing. <https://doi.org/10.1088/1755-1315/693/1/012080>
- Wang, Y., Sun, H., & Zhao, J. (2012). Policy Review and Outlook on China's Sustainable Development Since 1992. *Chinese Geographical Science*, pp. 22, 381-389. <https://doi.org/10.1007/s11769-012-0518-0>
- Wang, X. Y., Xie, Z. Y., & Ma, Y. (2019). Estimation of County Ecological Civilization Construction Level in Sichuan Province Based on Improved Ecological Footprint Model. *Applied Ecology & Environmental Research*, 17(6). [https://doi.org/10.15666/aeer/1706\\_1295912971](https://doi.org/10.15666/aeer/1706_1295912971)
- Wei, F. (2022). Research on the Construction of Practical Courses of Landscape Architecture Specialty Guided by Ecological Civilization Education from the Perspective of Educational Psychology. *Psychiatria Danubina*, 34(suppl 2), pp. 356-356.
- Weins, N. W. (2019). Ecological Compensations in the People's Republic of China: Towards an Ecological Civilization in Chongqing?. *Seminário Pesquisar China Contemporânea*, (3).
- Xiao, W., Hu, Z., Li, J., Zhang, H., & Hu, J. (2011). A Study of Land Reclamation and Ecological Restoration in a Resource-Exhausted City-A Case Study of Huaibei in China. *International Journal of Mining, Reclamation and Environment*, 25(4), 332-341. <https://doi.org/10.1080/17480930.2011.608888>
- Xuwei, Z. (2017). Study the Construction of the Security Element System Model of Water Ecological Civilization Construction. *Agro Food Industry Hi-Tech*, 28(3), 679-683.
- Xu, J., Xu, D., & Qu, C. (2022). Construction of Ecological Security Pattern and Identification of Ecological Restoration Zones in Changchun, China. *International Journal of Environmental Research and Public Health*, 20(1), 289. <https://doi.org/10.3390/ijerph20010289>
- Xu, K., & Tian, G. (2022). Codification and Prospect of China's Codification of Environmental Law from the Perspective of Global Environmental Governance. *International Journal of Environmental Research and Public Health*, 19(16), 9978. <https://doi.org/10.3390/ijerph19169978>
- Xu, P., & Luo, F. (2020, November). Investing a Better Future: Education for Sustainable Development as a Means to Strengthen the Environmental Education. In *IOP Conference Series: Earth and Environmental Science* (Vol. 576, No. 1, p. 012011). IOP Publishing. <https://doi.org/10.1088/1755-1315/576/1/012011>

- Xu, S., Sun, P., & Yin, K. (2020). Innovation Driving Effect of Marine Economic Structure Transformation. *Journal of Coastal Research*, 115(SI), pp. 184–186. <https://doi.org/10.2112/JCR-SI115-057.1>
- Yue, S. W. (2021). Evaluation of the Coordinated Development of Chengdu-Chongqing Ecological Civilization Construction Based on the Gray Correlation-Distance Coordinated Coupling Model. *Journal of Environmental Protection and Ecology*, 22(3), 1358–1365.
- Zhang, B., Cao, C., Gu, J., & Liu, T. (2016). A New Environmental Protection Law, Many Old Problems? Challenges to Environmental Governance in China. *Journal of Environmental Law*, 28(2), 325–335. <https://doi.org/10.1093/jel/eqw014>
- Zhang, L., Wang, H., Zhang, W., Wang, C., Bao, M., & Liang, T. (2022). Study on the Development Patterns of Ecological Civilization Construction in China: An Empirical Analysis of 324 Prefectural Cities. *Journal of Cleaner Production*, p. 367, 132975. <https://doi.org/10.1016/j.jclepro.2022.132975>
- Zhang, Y. H. (2012). On the Importance, Meaning and Realization of the Ecological Civilization with Chinese Characteristics. *Advanced Materials Research*, p. 361, 1910-1913. <https://doi.org/10.4028/www.scientific.net/AMR.557-559.1910>
- Zhao, X. (2013). Transformation of Higher Education from the Perspective of Ecological Civilization. *In Proceedings of the 2013 International Conference on Education Technology and Information System*, ed. XM Huang (pp. 259-262). <https://doi.org/10.2991/icetis-13.2013.59>
- Zhao, Y., Wu, Y., Wu, X., & Zhang, X. (2023). Coupling Coordination Between Ecological Civilization Construction and the Tourism Industry in the Yellow River Basin. *Environment, Development and Sustainability*, pp. 1–17. <https://doi.org/10.1007/s10668-023-03661-8>
- Zhou, R. K. (2024). From Education for a Sustainable Development to Ecological Civilization in China: A Just Transition? *Social Inclusion*, p. 12. <https://doi.org/10.17645/si.7421>
- Zhou, R., & Lee, N. (2022). The Reception of Education for Sustainable Development (ESD) in China: A Historical Review. *Sustainability*, 14(7), 4333. <https://doi.org/10.3390/su14074333>
- Zhou, X., Zhang, F., Shan, L., & Lin, C. (2023). Research on the Current Situation and Problems of Ecological Civilization Education for Contemporary College Students—An Empirical Analysis Based on Structural Equation Modeling. *Sustainability*, 15(22), 16051. <https://doi.org/10.3390/su152216051>
- Zuo, Z., Guo, H., Cheng, J., & Li, Y. (2021). How to Achieve New Progress in Ecological Civilization Construction?—Based on Cloud Model and Coupling Coordination Degree Model. *Ecological Indicators*, 127, 107789. <https://doi.org/10.1016/j.ecolind.2021.107789>